

The Examiner asserts that Wakitani et al. discloses “a plasma display apparatus representing the luminance of one field in accordance with a combination of sub-frames (i.e.; sub-fields)...” The Examiner then admits, and applicants agree, that Wakitani et al. does not teach that “the sub-frames include a smaller luminance sub-frame having a luminance level which is lower than the minimum gray level of luminance.” However, the Examiner then alleges that since Tajima et al. teaches that “ the gray scale level of luminance is indicated by higher bits in a sequence of sub-frames associated with smaller weights of luminance... it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wakitani by specifically providing a display device wherein the gray scale level of luminance is indicated by higher bits in a sequence of sub-frames associated with smaller weights of luminance, as disclosed by Tajima et al..”

Applicants respectfully submit that the Wakitani et al. system is directed to a display device wherein a sub-field having the highest luminance value among plural sub-fields is further divided into a plurality of sub-field parts. More specifically, the divided smaller sub-fields are arranged separately at different sub-fields in a field period. Since such divided sub-fields are arranged separately in a field, a flicker can be avoided.

Regarding Tajima et al., similar to Wakitani et al., this system is directed to a display device displaying a multiple-level gray scale picture through a frame having a plurality of sub-frames which are time-divided in accordance with weight value of gray scale for each sub-frame. See column 4, lines 52-65, as relied upon by the Examiner. In other words, the divided smaller sub-frames are arranged separately at different sub-frames in a frame period. In essence, the minimum gray scale sub-frame in Tajima et al. is SF1 (see FIG. 4), and therefore there is no smaller luminance sub-frame than SF1 in Tajima et al., unlike in the present invention. Accordingly, Tajima et al. does not teach or suggest “wherein the sub-frames includes a smaller luminance sub-frame having a luminance level which is lower than the minimum gray scale level of luminance which can be represented by the number of bits in the input video data,” as recited in independent claims 1, 5, and 7 of Applicants invention, which is also admitted by the Examiner as lacking in Wakitani et al. Accordingly, Applicants respectfully submits that since neither Wakitani et al. nor Tajima et al. teach each of the features as recited in independent claims 1, 5 and 7 of the present application, these claims are allowable over both Wakitani et al. and Tajima et al., or any hypothetical combination thereof. Further, for at least the reasons that claims 2-4 depend from allowable independent claim 1, and claim 6 depends from allowable independent claim 5, it is respectfully submitted that these claims are

also allowable over both Wakitani et al. and Tajima et al.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance, and an early action to that effect is courteously solicited.

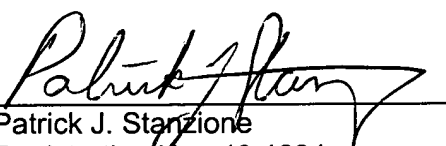
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: June 13, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**IN THE CLAIMS:**

Please AMEND the following claims:

1. (ONCE AMENDED) A plasma apparatus, which represents the luminance of one frame in accordance with a combination of sub-frames having predetermined luminance levels, [comprises] comprising:

a data converter [for converting] to convert input video data into output data in which the ON/OFF states of the sub-frames are specified;

wherein the sub-frames include a smaller luminance sub-frame having a luminance level which is lower than the minimum gray scale level of luminance which can be represented by the number of bits in the input video data.

2. (ONCE AMENDED) A plasma display apparatus according to claim 1, wherein said data converter has a plurality of conversion characteristics, and a desired conversion characteristic is selected in accordance with a mode set signal [for selecting] to select said plurality of conversion characteristics.

5. (ONCE AMENDED) A data converter [for] used with a plasma display apparatus which represents the luminance of one frame in accordance with a combination of sub-frames having predetermined luminance levels, wherein video input data are converted into output data in which the ON/OFF states of the plurality of sub-frames are specified, and wherein the sub-frames include a smaller luminance sub-frame which has a luminance level lower than the minimum gray scale level of luminance which can be represented by the number of bits in the input video data.

7. (ONCE AMENDED) Driving method for a plasma display apparatus which represents the luminance of one frame in accordance with a combination of sub-frames having predetermined luminance levels, comprising:

[a step of] converting video input data into output data in which the ON/OFF states of the plurality of sub-frames are specified;

wherein the sub-frames include a smaller luminance sub-frame which has a luminance

level lower than the minimum gray scale level of luminance which can be represented by the number of bits in the input video data.